



Economic Impact Analysis Virginia Department of Planning and Budget

4 VAC 25-90 – Rules and Regulations Governing the Use of Diesel Powered Equipment in Underground Coal Mines

Department of Mines, Minerals, and Energy

October 20, 2000

The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with Section 9-6.14:7.1.G of the Administrative Process Act and Executive Order Number 25 (98). Section 9-6.14:7.1.G requires that such economic impact analyses include, but need not be limited to, the projected number of businesses or other entities to whom the regulation would apply, the identity of any localities and types of businesses or other entities particularly affected, the projected number of persons and employment positions to be affected, the projected costs to affected businesses or entities to implement or comply with the regulation, and the impact on the use and value of private property. The analysis presented below represents DPB's best estimate of these economic impacts.

Summary of the Proposed Regulation

The Department of Mines, Minerals, and Energy (DMME) proposes numerous amendments to this regulation. Many of the changes are proposed in order to match federal law from the U.S. Mine Safety Health Administration (MSHA). Most of these changes do not affect the regulated community since they already must comply with federal law. Changes that may affect the regulated community include: 1) the elimination of the requirements to test air quality for the presence of sulfur dioxide, carbon dioxide, and formaldehyde, 2) the elimination of the requirement to test diesel equipment emissions for nitric oxide, 3) the reduction of the threshold limit value for carbon monoxide from 50ppm to 25ppm, and 4) allowing operators to obtain approval for diesel equipment from the Chief of the Virginia Division of Mines' designated representative.

Estimated Economic Impact

Reduction of Required Testing

Under the current regulations, air quality and diesel equipment emissions in mines must be tested for concentrations of carbon monoxide, nitrogen dioxide, nitric oxide, carbon dioxide, formaldehyde, and sulfur dioxide. The proposed regulations only require that concentrations of carbon monoxide and nitrogen dioxide be determined. According to DMME, nitric oxide, carbon dioxide, and formaldehyde will only occur at a harmful concentration when carbon monoxide is also occurring at a harmful concentration. This determination has been made by DMME and MSHA researchers, supported by information provided by the National Institute of Occupational Safety and Health (NIOSH) and the American Conference of Governmental Industrial Hygienists (ACGIH).¹ Thus, based on this determination, testing for nitrogen dioxide would be sufficient to determine if a health risk exists due to any of the four substances. DMME proposes to eliminate testing for sulfur dioxide because, due to U.S. Environmental Protection Agency standards, the diesel fuel used in mines no longer contains enough sulfur to produce dangerous levels of sulfur dioxide emissions.²

DMME estimates that operators currently use 3 to 9 tubes per day to test for nitric oxide, and one tube per month to test for sulfur dioxide, carbon dioxide, and formaldehyde. Also, DMME estimates that the cost of each tube is about \$5.25, that it takes 5 to 10 minutes for each tube test, and that the applicable employees are paid about \$18 per hour. The proposed elimination of the requirements to test for nitric oxide will therefore save operators approximately \$79 to \$236 per week in materials,³ and \$22.50 to \$135 per week in labor.⁴ While, the proposed elimination of the requirements to test for sulfur dioxide, carbon dioxide, and formaldehyde will save operators approximately \$15.75 per month in materials,⁵ and \$4.50 to \$9 in labor.⁶

¹ Source: Department of Mines, Minerals, and Energy

² Source: Department of Mines, Minerals, and Energy

³ Calculation: (3 to 9 tubes per substance per day) x (5 days a week) x (\$5.25 per tube) = \$78.75 to \$236.25 per week

⁴ Calculation: (3 to 9 tubes per substance per day) x (5 days a week) x (5 to 10 minutes per tube) x (\$18 per hour) = \$22.50 to \$135 per week

⁵ Calculation: (1 tube per substance per month) x (3 substances) x (\$5.25 per tube) = \$15.75 per month

⁶ Calculation: (1 tube per substance per month) x (3 substances) x (5 to 10 minutes per tube) x (\$18 per hour) = \$4.50 to \$9 per month

DMME also proposes to reduce the frequency of carbon monoxide diesel equipment emission tests from daily to once a week. According to the agency, the reduction in frequency of carbon monoxide diesel equipment emission tests will not put the miners' health at risk, since carbon monoxide air quality tests will continue to be performed every shift. Based on DMME's assessment that the number of tubes used for tests will decline from (a range of 15 to 45) to one per week, operators would save approximately \$73.50 to \$231 per week in materials⁷ and \$21 to \$132 in labor⁸ due to this proposed change.

Assuming that DMME and MSHA's assessments that: 1) testing for carbon monoxide would be sufficient to determine if a health risk exists due to the presence of nitric oxide, carbon dioxide, or formaldehyde is correct, 2) that the determination that the diesel fuel used in mines no longer contains enough sulfur to produce dangerous levels of sulfur dioxide emissions is correct, and 3) the reduction in frequency of carbon monoxide diesel equipment emission tests will not put the miners' health at risk, since carbon monoxide air quality tests will continue to be performed every shift is correct, then the proposed changes to eliminate and reduce the frequency of required tests will not compromise health safety. Since there are cost savings associated with the reduction of required testing, a net benefit would be produced.

Reduced Threshold Limit Value

The proposed regulations would reduce the threshold limit value (TLV) for carbon monoxide from 50ppm to 25ppm. The TLV is the airborne concentration of a substance that represents conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect as recommended by the American Conference of Government Industrial Hygienists. According to DMME, carbon monoxide concentrations will remain well below 25ppm as long as the diesel equipment functions properly. Thus, the proposed lower TLV should not produce new costs for operators. The lower TLV may help prevent workers from being exposed to harmful concentrations of carbon monoxide by triggering preventative action sooner.

⁷ Calculation: (14 to 44 tubes per week) x (\$5.25 per tube) = \$73.50 to \$231 per week

⁸ Calculation: (14 to 44 tubes per week) x (5 to 10 minutes per tube) x (\$18 per hour) = \$21 to \$132

Approval for Diesel Equipment

Under the current regulations, diesel-powered equipment is not permitted underground without approval from the Chief of the Virginia Division of Mines. DMME proposes to allow operators to obtain approval of diesel-powered equipment from either the Chief or his designated representative. On occasions that the Chief is unavailable due to vacation, illness, or work-related reasons, the ability to obtain approval from a designated representative could speed up the approval process by a number of days. This would be beneficial for operators without producing any cost.

Businesses and Entities Affected

DMME estimates that 20 coal companies, 1,500 coal miners, and 14 equipment manufacturers will be affected by the proposed regulation.

Localities Particularly Affected

Virginia's coal industry is primarily located in the southwestern portion of the Commonwealth, including the Counties of Buchanan, Dickenson, Lee, Russell, Scott, Tazewell, and Wise, and the City of Norton.

Projected Impact on Employment

The proposed reduction of required testing would reduce the need for approximately 2.5 hours to 15 hours a week of labor time.

Effects on the Use and Value of Private Property

The proposed reduction of required testing would reduce costs for coal companies, and would perhaps increase their value by a small amount. Some firms that supply testing equipment and parts (tubes) will likely encounter a small reduction in demand for their products. Consequently, the value of these firms may decline slightly.